

medium attenuatis, supra convexis, tuberculis seriatim duplici serie in singulis positus.

Long. 26, lat. $10\frac{1}{2}$ mm.

Black, covered with a brown squamosity. Rostrum elongated, shaped like that of *B. setipennis*; scape of antennæ elongated, the other joints closely set, the apical one cylindrical; prothorax very rugose, much amplified, shaped like that of *B. cornutus*, with the sides subangular, much sinuated anteriorly, as broad as the elytra, which are very elongated, narrowed in the middle, slightly amplified posteriorly, convex, very rugose, and each provided with two rows of tubercles, the discoidal more conspicuous than the second row. Legs as in *B. setipennis*.

One example from Natal.

Cape Town,
July 25, 1888.

XXVII.—On the Fossil Fish-spines named *Cœlorhynchus*, Agassiz. By A. SMITH WOODWARD, F.G.S., F.Z.S., of the British Museum (Natural History).

AMONG the most interesting of undetermined Ichthyodorulites are some straight, long, slender, round, ribbed spines, met with in the Upper Cretaceous and Tertiaries, and originally described by Agassiz as the rostral bones of sword-fishes under the name of *Cœlorhynchus* *. Their dermal nature was first pointed out by Williamson †, who published a detailed microscopical description; and fragments of the fossil have since been recognized from various parts of the world.

Cœlorhynchus cretaceus occurs in the Chalk of England ‡, and fragments of a similar spine in the "Mucronatenkreide" of Lüneburg §. Agassiz (*loc. cit.*) named *C. rectus* and *C. sinuatus*, without description, from the Bracklesham Beds and the London Clay of Sheppey respectively ||. Le Hon ¶, P.

* L. Agassiz, Rech. Poiss. Foss. vol. v. pt. i. (1843), p. 92.

† W. C. Williamson, "Investigations into the Structure and Development of the Scales and Bones of Fishes," Phil. Trans. 1849, p. 471, pl. xliii. figs. 35-37; *ibid.* 1851, p. 668.

‡ F. Dixon, Geol. and Foss. Sussex, 1850, p. xii, pl. xxxii. fig. 10.

§ W. Dames's paper quoted below, p. 148.

|| *C. rectus* is erroneously ascribed to the London Clay in the original notice. See figures by F. Dixon, *op. cit.* pl. x. figs. 14-17, pl. xi. fig. 26.

¶ H. Le Hon, 'Préliminaires d'un Mémoire sur les Poissons tertiaires de Belgique,' 1871. Figures given in Burtin's 'Oryctographie de Bruxelles,' 1784, pl. vi. figs. A-H.

J. van Beneden*, and Winkler† have made known *C. rectus* and *C. Burtini*, from the Bruxellian Eocene of Belgium; and Schafhäütl‡ has described *C. sulcatus*, from the Eocene of Kressenberg, Bavaria, while erroneously identifying another specimen from the same formation with *C. cretaceus*. Similar fossils are known from the Eocene of Alabama, U.S.A. Dames§ briefly notices other fragments from corresponding beds in the island of Birket-el-Qurūn, Egypt; and the impression of one small example in the British Museum was obtained from India, probably from the Nummulitic series of Sind||.

Having so wide a distribution, and being everywhere associated with numerous other fish-remains, it is somewhat remarkable that as yet no clue has been discovered as to the affinities of the genus to which these spines originally pertained. They have been fully described in some of the works quoted above, and several times figured; but no naturalist has hitherto succeeded in offering a plausible explanation of them, and the large series of examples in the British Museum only adds one new fact to our knowledge of the subject, namely the occasional occurrence of specimens representing fishes of very large size. On referring to the published descriptions it will be observed that the known Cretaceous forms of *Cœlorhynchus* are relatively small, perhaps not attaining a greater length than 0.14 m. and a maximum diameter of 0.004. Those of the Bracklesham Beds are much larger, one measuring at least 0.26 in length and having a diameter of about 0.013 at the base; while the specimen now to be described attains to proportions comparatively gigantic. This was obtained from Egypt, having been extracted from the rock of the Great Sphinx and presented to the British Museum in 1838 by Colonel Howard Vyse. The specimen is in three fragments (nos. 893-895) and measures in the widest portion preserved no less than 0.022 across. It tapers very gradually as usual, and, if of the same proportions as the Bracklesham fossils, must have originally

* P. J. van Beneden, "Recherches sur quelques Poissons fossiles de Belgique," Bull. Acad. Roy. Belg. [2] vol. xxxi. (1871), p. 161.

† T. C. Winkler, "Mémoire sur les Dents de Poissons du terrain bruxellien," Archiv. Mus. Teyler, vol. iii. (1874), p. 303.

‡ K. E. Schafhäütl, 'Süd-Bayerns Lethæa Geognostica,' 1863, p. 249, pl. lxiv. fig. 5.

§ W. Dames, "Ueber eine tertiäre Wirbelthierfauna von der westlichen Insel des Birket-el-Qurūn in Fajum (Aegypten)," SB. k. preuss. Akad. Wiss. 1883, vol. i. p. 148.

|| R. Lydekker, "The Fossil Vertebrata of India," Rec. Geol. Surv. India, vol. xx. (1887), p. 70.

attained a length of at least 0·44 m. The superficial longitudinal ribs are broad, close, and somewhat flattened, very even, and several times bifurcated. Distally the section is almost circular and the internal cavity very small; more proximally the cavity enlarges considerably and the section becomes oval. The fossil is evidently distinct from all others yet named, and, presenting well-marked characters, may be provisionally quoted as *C. gigas*.

While, however, the described specimens and those in the British Museum afford no clue to the affinities of the fish bearing the spines under discussion, one small Chalk fossil in the collection of Henry Willett, Esq., F.G.S., in the Brighton Museum, furnishes some slight information upon the subject*. This is the imperfect anterior portion of a small fish-skeleton (no. 99), exhibiting, apparently on the dorsal aspect, a perfect example of "*Cœlorhynchus cretaceus*" 0·043 m. in length. The portions of endoskeleton preserved show well that they originally consisted of cartilage, calcified merely at the surface, as in Selachians and Chimæroids; and the particles of the thin film of hard material are not sufficiently large to be distinguished by a lens. In front of the fossil are two large fragments, probably to be interpreted as parts of the head; and close behind is a broad vertical bar, completely separated at a short distance, and very suggestive in every respect of half of the pectoral arch of a shark or Chimæroid. Immediately above the supposed pectoral arch is the base of the slender spine, having no unornamented inserted portion and directly in contact with a fragment of cartilage. There are no traces of a vertebral column.

It therefore seems evident that *Cœlorhynchus* is the spine of a cartilaginous fish, that probably occupied a forward position upon the back; and, if the interpretation of Mr. Willett's fossil be correct, the genus must pertain either to the sharks or the Chimæroids. The microscopical structure of the fossil accords with this supposition, although somewhat anomalous; and as the dorsal spines in no true shark, so far as I am aware, are destitute of a smooth inserted base, I would venture to refer the fish provisionally to the Chimæroids. The extinct members of the latter order do not all possess dorsal spines of the normal type observed in the living *Chimæra*, as shown by Dr. von Zittel's *Chimæropsis* †; and the possibility

* For the opportunity of studying this specimen the writer is indebted to the kindness of Mr. Willett and of Mr. Edward Crane, Chairman of the Brighton Museum Committee.

† K. A. von Zittel, 'Handbuch der Palæontologie,' vol. iii. (1887), p. 113.

of the problematical spines under discussion pertaining to the same group is thus rendered more worthy of consideration. In any case the name *Cælorhynchus* is obviously inappropriate, as well remarked by Williamson; but it has yet to be determined whether the dentition of the same fish has not already become known under some other suitable generic title.

XXVIII.—*Description of a new Bat of the Genus Nyctophilus.*
By OLDFIELD THOMAS.

AMONG the mammals obtained by Mr. H. O. Forbes at Sogere, South-east New Guinea, and acquired by the Natural-History Museum, there occur two specimens of a bat belonging to the widely-spread genus *Nyctophilus*, but apparently not referable to *N. timorensis*, the only previously recognized species of the genus. I propose to call it

Nyctophilus microtis, sp. n.

General characters as in *N. timorensis*, but the ears very much smaller, when laid forward not reaching beyond the tip of the muzzle; their connecting band across the forehead nearly or quite obsolete in the centre. Upper third of outer margin of ears straight instead of convex, the tip of the ear being therefore narrower and more pointed than in *N. timorensis*. Otherwise the shape of the ears, of the tragus, and of the nose-leaf are all much as in that species, as also are the colour and distribution of the fur, the insertion of the wing-membranes, the development of the postcalcarial lobe, and the characters of the interfemoral membrane.

Measurements of the type, an adult male in alcohol:—Head and body 49 millim.; tail 42; ear, length above crown 12, breadth 11; tragus, length of internal edge 5·2; forearm 37·8; lower leg 17·3; hind foot 7·7; calcaneum 14.

The second specimen has a forearm 39 millim. in length.

The species is therefore rather smaller than *N. timorensis*, which has a forearm varying in length from about 41 to 48 millim. Owing to its small and unconnected ears *N. microtis* is quite without that look of resemblance to the European long-eared bat so characteristic of *N. timorensis*—a species which, as Dr. Dobson has remarked, “evidently takes the place of *Plecotus auritus* in the Australian region.”